

1. A loop component of a hook and loop fastener, the loop component comprising a nonwoven body of fibers having a basis weight of less than about 4 ounces per square yard, the fibers forming

5 a sheet-form base containing taut sections of fiber extending within a common plane between tightened knots of fibers, and

a great multiplicity of loop formations dispersed across the base, each loop formation having

10 a trunk of fibers drawn together by taut fibers of the base and extending from an associated knot in the common plane of the base, and

multiple hook-engageable loops formed of fibers of the trunk and extending from the trunk for engagement by

15 hooks of a mating component.

2. The loop component of claim 1 in which the majority of fibers forming the trunks and hook-engageable loops are crimped.

3. The loop component of claim 1 in which the

20 knots of the base each correspond to an associated previous penetration of the body of fibers by a needle.

4. The loop component of claim 3 in which the body of fibers comprises crimped staple fibers.

5. The loop component of claim 1 in which the

25 fibers comprising the trunks of the loop formations are secured together by a cured binder in interstices within the trunks.

6. The loop component of claim 5 in which the cured binder composes between about 20 and 40 percent of the total weight of the body of fibers.

7. The loop component of claim 1 in which the  
5 fibers comprising the trunks of the loop formations are secured together by fused surface portions of at least some of the fibers comprising the trunks.

8. The loop component of claim 1 in which the  
10 fibers comprising the trunks of the loop formations are secured together by interlocking crimps of the fibers.

9. The loop component of claim 1 in which at least some of the fibers comprising the trunks of the loop formations each have a thickness that undulates along their length.

10. The loop component of claim 1 further  
15 comprising a resilient layer of foam laminated to the base of the body of fibers.

11. The loop component of claim 1 further  
20 comprising a layer of resin laminated to the base of the body of fibers.

12. The loop component of claim 11 in which the resin layer forms hook projections shaped to engage the loops of the component.

13. The loop component of claim 1 having a basis  
25 weight of less than about 2 ounces per square yard.

14. The loop component of claim 1 in which the hook-engageable loops extend to an average loop height, measured as the perpendicular distance from the sheet-form base, of between about 0.020 and 0.060 inch.

5 15. The loop component of claim 14 in which the body of fibers has an overall thickness, defined to include the sheet-form base and a majority of the loops, the average loop height being between about 0.5 and 0.8 times the overall thickness of the body of fibers.

10 16. The loop component of claim 1 in which the sheet-form base has between about 50 and 1000 tightened knots per square inch of area, from which hook-engageable loop formations extend.

15 17. The loop component of claim 1 in which the body of fibers is generally composed of fibers having a tenacity of at least 2.8 grams per denier.

18. The loop component of claim 1 having a Gurley stiffness of less than about 300 milligrams.

20 19. A method of forming a loop fastener component, the method comprising the steps of

providing a sheet-form mat of fibers, the mat having width and including

25 at least one base fiber of a length greater than the width of the mat and extending substantially across the mat, and

loop fibers freely disposed within the mat;  
tensioning the base fiber by applying tension across the width of the mat, thereby forming a tensioned web formed

by discrete, taut portions of base fiber extending between tightened entanglements, relative movement between portions of the base fiber during tensioning drawing together portions of the loop fibers to form upstanding, hook-engageable loops extending from the entanglements within the tensioned web, and

stabilizing the web in its tensioned state, the stabilized web and loops having a combined weight of less than about 4 ounces per square yard.

10 20. The method of claim 19 wherein the step of stabilizing includes solidifying a binder within the entanglements of the tensioned web.

15 21. The method of claim 19 wherein the step of tensioning increases the width of the mat by at least 20 percent.

22. The method of claim 19 wherein the step of providing a sheet-form mat of fibers includes continuously spinning the base fiber onto a supporting surface in a predetermined, overlapping pattern.

20 23. The method of claim 22 further comprising impinging a pulsating air jet against the base fiber under conditions which cause the fiber to assumed a crimped form as it is spun.

25 24. The method of claim 19 in which the base fiber has a cross-sectional property that varies along its length.

25. A method of forming a loop fastener component for hook-and-loop fastening from a generally planar non-woven batt of entangled fibers, the method comprising stretching the batt by at least 20 percent in at least one direction in its plane, thereby producing a stretched web of weight less than about 4 ounces per square yard and having a generally planar web body with hook-engageable loops extending therefrom, a substantial number of fibers of the body being regionally taut in the plane of the web body, and extending in different directions radiating from bases of the loops; and stabilizing the web in its stretched condition.

26. The method of claim 25 wherein the batt is retained against shrinking in a perpendicular direction within its plane during stretching.

27. The method of claim 26 further comprising, after stretching the batt in said one direction, stretching the batt by at least 20% in said perpendicular direction.

28. The method of claim 25 further comprising, while stretching the batt in said one direction, stretching the batt by at least 20% in a second direction perpendicular to said one direction and within the plane of the batt.

29. The method of claim 25 wherein the stretching increases the area of the batt by at least 50%.

29. The method of claim 25 wherein the stretching causes the regionally taut fibers of the web body to be trained about loop-forming fibers in the bases of the loops.

30. The method of claim 29 wherein the batt is stretched in a manner that the loop-forming fibers form free-standing formations that extend from the plane of the web body, each formation containing multiple fibers and forming multiple hook-engageable loops.

31. A method of forming a loop fastener component for hook-and-loop fastening, the method comprising providing a generally planar length of non-woven batt of entangled fibers, the batt having a thickness that varies across its width from one longitudinal edge thereof to an opposite longitudinal edge thereof;

stretching the batt widthwise, thereby increasing the width of the batt by at least about 20 percent and producing a stretched web having a generally planar web body with hook-engageable loops extending therefrom, a substantial number of fibers of the body being regionally taut in the plane of the web body, and extending in different directions radiating from bases of the loops, the step of stretching causing the thickness of the batt to become substantially uniform over its width; and then stabilizing the web in its stretched condition.

32. The method of claim 31 wherein the stretched batt has weight less than about 4 ounces per square yard.

33. The method of claim 31 wherein the stretched batt has width at least about twice the width of the batt prior to stretching.